



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/663,316

09/15/2003

Paul S. Diefenbaugh

42P17654

1317

8791

7590

07/10/2008

BLAKELY SOKOLOFF TAYLOR & ZAFMAN LLP
1279 OAKMEAD PARKWAY
SUNNYVALE, CA 94085-4040

EXAMINER

XIAO, KE

ART UNIT

PAPER NUMBER

2629

MAIL DATE

DELIVERY MODE

07/10/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/663,316 | Applicant(s) DIEFENBAUGH ET AL. | |
| | Examiner Ke Xiao | Art Unit 2629 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-12,14-22,25-32,35-42 and 44-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-12,14-22,25-32,35-42 and 44-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/16/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Claims 32 and 42 and their respective dependent claims recite the limitation "computer-readable storage medium". In order to provide antecedent basis for this limitation, the applicant needs to define this exact term in the specification.

Claim Objections

Claim 6 and 37-39 are objected to because of the following informalities:

Claims 6 and 37-39 are incorrectly labeled. Please see 37 CFR 1.121. All claims being currently amended in an amendment paper shall be presented in the claim listing, indicate a status of "currently amended," and be submitted with markings to indicate the changes that have been made relative to the immediate prior version of the claims. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived. Only claims having the status of "currently amended," or "withdrawn" if

also being amended, shall include markings. If a withdrawn claim is currently amended, its status in the claim listing may be identified as "withdrawn — currently amended".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4, 7, 8, 11, 12, 14, 16-18, 21, 22, 25 and 27-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Aleksic (US 2003/0210221).

Regarding independent **Claim 1**, Aleksic teaches a method comprising:

determining an ambient light level for an operating environment of a display device having an adjustable backlight to provide variable brightness by causing the duty cycle of the backlight control signal to be modified based on the ambient light level (Aleksic, Fig. 4 elements 405, 436, 440, 445, Pg. 3 paragraph [0028]);

modifying pixel color intensity values and contrast corresponding to of one or more portions of an image to be displayed on the display device based on the ambient light level (Aleksic, Pg. 3 paragraph [0029]); and

modifying the backlight intensity based on the modified pixel color intensity values wherein modification to the backlight intensity approximately offsets the modification to the pixel color intensity values (Aleksic, Pg. 3 paragraphs [0028-0030]).

Regarding independent **Claim 12**, Aleksic teaches a method comprising:

determining an ambient light level fro a display device having an adjustable backlight to provide variable backlight intensity (Aleksic, Fig. 4 elements 405, 436, 440, 445, Pg. 3 paragraph [0028]);

modifying the backlight intensity based on the ambient light level by causing the duty cycle of the backlight control signal to be modified based on the ambient light level; (Aleksic, Fig. 4 elements 405, 436, 440, 445, Pg. 3 paragraph [0028]); and

modifying pixel color intensity values and contrast corresponding to one or more portions of an image to be displayed on the display device based on the modified intensity of the adjustable backlight (Aleksic, Pg. 3 paragraph [0029]); and

wherein modification to the pixel color intensity values approximately offsets the modification to the backlight intensity (Aleksic, Pg. 3 paragraphs [0028-0030]).

Regarding independent **Claim 22**, Aleksic teaches an apparatus comprising:

an ambient light sensor to generate signals indicating a sensed ambient light level (Aleksic, Fig. 4 element 445);

a display device having an adjustable backlight source (Aleksic, Fig. 4 element 136 and 440); and

a graphics control device coupled with the ambient light sensor on the display device, the graphics control device to modify pixel color intensity values corresponding

to one or more portions of an image and backlight intensity based on the sensed ambient light level (Aleksic, Fig. 4 element 440);

wherein the graphics control device modifies backlight intensity based on the sensed ambient light level by causing the duty cycle of the backlight control signal to be modified based on the ambient light level and modifies the pixel color intensity values and contrast corresponding to one or more portions of an image to be displayed on the display device based on the modified backlight intensity (Aleksic, Fig. 4 elements 440, 450 and 455, Pg. 2 paragraph [0021] Pg. 4 paragraphs [0034-0035]).

Regarding **Claims 4 and 14**, Aleksic further teaches that determining the ambient light level comprises receiving a signal from an ambient light sensor indicating the ambient light level (Aleksic, Pg. 3 paragraphs [0028-0029]).

Regarding **Claims 7 and 17**, Aleksic further teaches wherein modifying the backlight intensity comprises modifying a pulse width modulation signal that controls backlight illumination (Aleksic, Pg. 2 paragraph 0021)).

Regarding **Claims 8 and 18**, Aleksic further teaches wherein modifying the backlight intensity comprises:

determining a hardware register value corresponding to a baseline backlight intensity value (Aleksic, Fig. 4 element 142);

applying a software generated value to the register value to generate a modified backlight intensity value (Aleksic, Fig. 4 element 440); and

using the modified backlight intensity value to cause the backlight intensity to be modified (Aleksic, Fig. 4 element 450).

Regarding **Claims 11 and 21**, Aleksic further teaches wherein the hardware register value is stored in a register within a peripheral component interconnect configuration space (Aleksic, Fig. 4 element 142).

Regarding **Claims 16**, Aleksic further teaches wherein modifying the pixel color intensity values comprises modifying a pixel color using a graphics controller look-up table prior to passing the pixel to the display device (Aleksic, Fig. 4 elements 440 and 455, Pg. 4 paragraphs [0034-0035]).

Regarding **Claim 25**, Aleksic further teaches wherein the display device comprises a flat-panel liquid crystal display (Aleksic, Pg. 4 paragraph [0031]).

Regarding **Claim 27**, Aleksic further teaches that the graphics control device comprises:

- a backlight control circuit coupled with the adjustable backlight source to control the intensity of backlight provided by the adjustable backlight source (Aleksic, Fig. 4 element 440); and

- a display control circuit coupled with the ambient light sensor and the backlight control circuit to apply an adjustment to a baseline backlight including at least the sensed ambient light level to generated a modified backlight intensity signal (Aleksic, Fig. 4 element 142);

- wherein the backlight control circuit causes the adjustable backlight source to provide a backlight intensity corresponding to the modified backlight intensity value (Aleksic, Fig. 4 elements 142, 440 and 450).

Regarding **Claim 28**, Aleksic further teaches that the backlight control circuit provides a pulse width modulated signal to the adjustable backlight source to control the intensity of the backlight provided by the adjustable backlight source (Aleksic, Pg. 2 paragraph 0021]).

Regarding **Claim 29**, Aleksic further teaches that the baseline backlight intensity is retrieved from a register coupled with the backlight controller (Aleksic, Fig. 4, 142).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aleksic (US 2003/0210221) in view of Wada (US 2002/0154138).

Regarding **Claim 6**, Aleksic fails to teach that modifying the pixel color intensity values comprises modifying brightness values in a color look-up table. Wada teaches adjusting color intensity values by modifying brightness values a color look-up table (Wada, Fig. 4, Pg. 2 paragraphs [0034-0042]). It would have been obvious to one of ordinary skill in the art at the time of the invention to have used the method of modifying a color look-up table to adjust pixel color intensity as taught by Wada in the device of Aleksic in order to allow the user more precise control over the color adjustment.

Claims 5, 9, 10, 15, 19, 20, 30-32, 35-42 and 44-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aleksic (US 2003/0210221) in view of Lin (US 6,618,045).

Regarding independent **Claim 32**, Aleksic teaches one or more processing devices (Aleksic, Fig. 4) which:

determine an ambient light level for a display device having an adjustable backlight to provide variable backlight intensity by causing the duty cycle of the backlight control signal to be modified based on the ambient light level (Aleksic, Fig. 1 element 140 and 145, Fig. 4 element 445);

modify pixel color intensity values and contrast corresponding to of one or more portions of an image to be displayed on the display device based on the ambient light level (Aleksic, Fig. 4 element 440, 457, and 455); and

modify the backlight intensity based on the modified pixel color intensity values wherein modification to the backlight intensity approximately offsets the modification to the pixel color intensity values (Aleksic, Fig. 4 elements 440, 450 and 455, Pg. 2 paragraph [0021] Pg. 4 paragraphs [0034-0035]).

Aleksic fails to teach an article comprising a computer-readable medium having stored thereon instructions that, when executed, cause the one or more processing devices to perform the above functions.

Lin teaches that modifying color, brightness, and/or contrast can be done through any combination of software or hardware (Lin, Fig. 3, Col. 3 lines 59-63). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to

use a computer-readable medium having stored thereon instructions that, when executed causes the one or more processing devices to perform any function as taught by Lin instead of the hardware described by Aleksic because software implementation would provided added flexibility to the system of Aleksic.

Regarding independent **Claim 42**, Aleksic teaches one or more computing devices (Aleksic, Fig. 4) used to:

determine an ambient light level for a display device having an adjustable backlight to provide variable backlight intensity (Aleksic, Fig. 4 element 445);

modify the backlight intensity based on the ambient light level by causing the duty cycle of the backlight control signal to be modified based on the ambient light level (Aleksic, Fig. 4 element 440) ; and

modify pixel color intensity values and contrast corresponding to one or more portions of an image to be displayed on the display device based on the modified intensity of the adjustable backlight (Aleksic, Fig. 4 element 440 and 457);

wherein modification to the pixel color intensity values approximately offsets the modification to the backlight intensity (Aleksic, Fig. 4 elements 440, 450 and 455, Pg. 2 paragraph [0021] Pg. 4 paragraphs [0034-0035]).

Aleksic fails to teach an article comprising a computer-readable medium having stored thereon instructions that, when executed, cause the one or more processing devices to perform the above functions.

Lin teaches that modifying color, brightness, and/or contrast can be done through any combination of software or hardware (Lin, Fig. 3, Col. 3 lines 59-63). Therefore it

would have been obvious to one of ordinary skill in the art at the time of the invention to use a computer-readable medium having stored thereon instructions that, when executed causes the one or more processing devices to perform any function as taught by Lin instead of the hardware described by Aleksic because software implementation would provide added flexibility to the system of Aleksic.

Regarding **Claims 35 and 44**, Aleksic in view of Lin further teaches wherein the instructions that cause the one or more processing devices to determine the ambient light level comprise instructions that, when executed, cause the one or more processing devices to receive a signal from an ambient light sensor indicating the ambient light level (Aleksic, Fig. 4 element 440).

Regarding **Claims 36 and 45**, Aleksic fails to teach instructions as claimed. Lin further teaches instructions that cause one or more processing devices to determine the ambient light level comprising instructions that, when executed, cause the one or more processing devices to receive user input (Lin, Col. 5 lines 5-33). It would have been obvious to one of ordinary skill in the art at the time of the invention to have further used the instructions as taught by Lin in the display system of Aleksic in order to allow specific adjustment as set by the user (Lin, Col. 5 lines 5-33).

Regarding **Claims 37 and 46**, Aleksic in view of Lin further teaches that the instructions that cause the one or more processing devices to modify the pixel color intensity values comprise instructions that, when executed, cause the one or more processing devices to adjust the pixel luminance, using brightness values in a color look-up table (Aleksic, Pg. 4 paragraphs [0034-0035]).

Regarding **Claims 38 and 47**, Aleksic in view of Lin further teaches that the instructions that cause one or more processing devices to modify the backlight intensity comprise instructions that, when executed, cause the one or more processing devices to modify a pulse width modulation signal that controls backlight illumination (Aleksic, Pg. 2 paragraph 0021]).

Regarding **Claims 39 and 48**, Aleksic in view of Lin further teaches that the instructions that cause one or more processing devices to modify the backlight intensity further comprise instructions that, when executed, cause the one or more processing devices to:

determine a hardware register value corresponding to a baseline backlight intensity value (Aleksic, Fig. 4 element 122);

apply a software generated value to the register value to generate a modified backlight intensity value (Aleksic, Fig. 4 element 440); and

use the modified backlight intensity value to cause the backlight intensity to be modified (Aleksic, Fig. 4 element 455).

Regarding **Claims 5 and 15**, Aleksic fails to teach that determining the ambient light level comprises receiving a user input. Lin teaches that determining the ambient light level comprises receiving a user input (Lin, Col. 5 lines 5-33). It would have been obvious to one of ordinary skill in the art at the time of the invention to have used the input of Aleksic as taught by Lin in order to allow specific adjustment as set by the user (Lin, Col. 5 lines 5-33).

Regarding **Claims 9, 19, 30, 40 and 49**, Aleksic fails to teach that the baseline backlight intensity value is determined based on a user provided input. Lin teaches that baseline settings can be determined based on user provided input (Lin, Col. 5 lines 34-45). It would have been obvious to one of ordinary skill in the art at the time of the invention to base the baseline backlight intensity as taught by Aleksic on a user provided input as taught by Lin in order to save power (Lin, Col. 5 lines 34-45).

Regarding **Claim 10, 20, 31, 41 and 50**, Aleksic fails to teach that the baseline backlight intensity value is determined based on a power state of the display device. Lin teaches that baseline settings can be determined based a power state of the display device (Lin, Col. 5 lines 34-45). It would have been obvious to one of ordinary skill in the art at the time of the invention to base the baseline backlight intensity as taught by Aleksic on a power state of the display device as taught by Lin in order to save power (Lin, Col. 5 lines 34-45).

Claims 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aleksic (US 2003/0210221) in view of Kim (US 2004/0156183).

Regarding **Claim 26**, Aleksic fails to teach that the display device comprises a plasma display device. Instead Aleksic teaches a liquid crystal display device. Kim teaches plasma display devices can be interchangeable with liquid crystal devices when applying backlight technology (Kim, Pg. 5 paragraph [0086]). It would have been obvious to one of ordinary skill in the art at the time of the invention to replace the

display device of Aleksic with the plasma display device as taught by Kim because plasma display devices have higher contrast ratios.

Response to Arguments

Applicant's arguments filed April 28th, 2008 have been fully considered but they are not persuasive.

The applicant argues that Aleksic fails to teach modifying contrast in connection with backlight intensity. The examiner respectfully disagrees. Specifically Aleksic clearly teaches modifying the backlight intensity by using a pulse width modulation method, either increasing or decreasing the duty cycle of the backlight to increase or decrease brightness. This inherently changes the contrast of the entire display because when the backlight is dark the entire display is darker and when the backlight is bright the entire display is brighter and in this way the dynamic contrast ratio can be increased.

The applicant further argues that Aleksic in view of Lin fails to teach "one or more processing devices that modify color intensity values of one or more portions of an image to be displayed on the display device based on the modified intensity of the adjustable backlight. The examiner respectfully disagrees. Aleksic is use to teach said limitation, Lin is merely brought in to teach that the adjustments that Aleksic makes can be done in either hardware or software or a combination of the two.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ke Xiao whose telephone number is (571)272-7776. The examiner can normally be reached on Monday through Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2629

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sumati Lefkowitz/

Supervisory Patent Examiner, Art Unit 2629

/Ke Xiao/

Examiner, Art Unit 2629